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EXAMINER	
TABATABAI, ABOLFAZL	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/796,327	HRISTOV, DIMITRE HRISTOV	
	Examiner	Art Unit	
	Abolfazl Tabatabai	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims1, 5-7, 9, 15, 19-21 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Ustuner et al (U. S. 6,780,152 B2).

Regarding claim 1, Ustuner discloses a method comprising:

acquiring a first plurality of images of a first portion of a body undergoing substantially periodic motion [according to Fig. 2, it shows a process for acquiring data for imaging a dynamic/and or partially obscured object, such as heart. Two set of images are acquired in acts 30 and 36. set of images is formed responsive to a first imaging parameter set for a first full or partial cardiac cycle in act 30. Another set of images is formed responsive to a second imaging parameter set for a second full or partial cardiac cycle in act 36. Then, the two sets of images are temporally aligned so that images in the sets of images correspond to the same set of phases of the cardiac cycle in act 38 (please not, to column 8, lines 13-36)];

acquiring a second plurality of images of a second portion of the body, the second portion comprising a portion of the first portion[according to Fig. 2, it shows a

process for acquiring data for imaging a dynamic/and or partially obscured object, such as heart. Two sets of images are acquired in acts 30 and 36. A set of images is formed responsive to a first imaging parameter set for a first full or partial cardiac cycle in act 30. Another set of images is formed responsive to a second imaging parameter set for a second full or partial cardiac cycle in act 36. Then, the two sets of images are temporally aligned so that images in the sets of images correspond to the same set of phases of the cardiac cycle in act 38 (please not, to column 8, lines 13-36)];

determining a correlation between at least one of the first plurality of images and at least one of the second plurality of images (please not, to column 5, lines 34-48); and,

generating a combined image of the first portion and the second portion based on the at least one of the first plurality of images and the at least one of the second plurality of images, the combined image corresponding to a first phase of the periodic motion (please not, to column 7, lines 18-29 and column 8, lines 13-36).

Regarding claim 5, Ustuner discloses a method according to claim 1, wherein determining the correlation comprises: determining that the at least one of the first plurality of images and the at least one of the second plurality of images represent substantially a same phase of the periodic motion (please not, to column 8, lines 26-29).

Regarding claim 6, Ustuner discloses a method according to claim 5, wherein determining the correlation further comprises: determining that the portion is substantially identically represented in the at least one of the first plurality of images and the at least one of the second plurality of images (please not, to column 8, lines 26-29).

Regarding claim 7, Ustuner discloses a method according to claim 1, further comprising: determining a second correlation between a second at least one of the first plurality of images and a second at least one of the second plurality of images [In Fig. 8, the two images, gmage 1 (100) and gimage 2 (102), respectively corresponding to the same cardiac phase from two clips, are searched in x-direction only and estimate a preliminary estimate for tx are determined in act (104)]; and generating a second combined image of the first portion and the second portion based on the second at least one of the first plurality of images and the second at least one of the second plurality of images, the second combined image corresponding to a second phase of the periodic motion (please note, to Fig. 8, for different correlation).

Regarding claim 9, Ustuner discloses a method according to claim 7, wherein determining the second correlation comprises: determining that the portion is substantially identically represented in the second at least one of the first plurality of images and the second at least one of the second plurality of images (please note, to column 8, lines 21-29).

Regarding claim 15, Ustuner discloses an apparatus comprising:

a memory storing processor-executable process steps (please not, to column 7, lines 14-15); and,

a processor (please note, to Fig. 1, element 18) in communication with the memory and operative in conjunction with the stored process steps to:

acquire a first plurality of images of a first portion of a body undergoing substantially periodic motion [according to Fig. 2, it shows a process for acquiring data

for imaging a dynamic/and or partially obscured object, such as heart. Two sets of images are acquired in acts 30 and 36. A set of images is formed responsive to a first imaging parameter set for a first full or partial cardiac cycle in act 30. Another set of images is formed responsive to a second imaging parameter set for a second full or partial cardiac cycle in act 36. Then, the two sets of images are temporally aligned so that images in the sets of images correspond to the same set of phases of the cardiac cycle in act 38 (please not, to column 8, lines 13-36)];

acquire a second plurality of images of a second portion of the body, the second portion comprising a portion of the first portion [according to Fig. 2, it shows a process for acquiring data for imaging a dynamic/and or partially obscured object, such as heart. Two sets of images are acquired in acts 30 and 36. A set of images is formed responsive to a first imaging parameter set for a first full or partial cardiac cycle in act 30. Another set of images is formed responsive to a second imaging parameter set for a second full or partial cardiac cycle in act 36. Then, the two sets of images are temporally aligned so that images in the sets of images correspond to the same set of phases of the cardiac cycle in act 38 (please not, to column 8, lines 13-36)];

determine a correlation between at least one of the first plurality of images and at least one of the second plurality of images (please not, to column 5, lines 34-48); and, generate a combined image of the first portion and the second portion based on the at least one of the first plurality of images and the at least one of the second plurality of images, the combined image corresponding to a first phase of the periodic motion (please not, to column 7, lines 18-29 and column 8, lines 13-36).

Regarding claim 19, Ustuner discloses an apparatus according to claim 15, wherein determination of the correlation comprises: determination that the at least one of the first plurality of images and the at least one of the second plurality of images represent substantially a same phase of the periodic motion (please not, to column 8, lines 26-29).

Regarding claim 20, Ustuner discloses an apparatus according to claim 19, wherein determination of the correlation comprises: determination that the portion is substantially identically represented in the at least one of the first plurality of images and the at least one of the second plurality of images (please not, to column 8, lines 26-29).

Regarding claim 21, Ustuner discloses an apparatus according to claim 15, the processor further operative in conjunction with the stored process steps to: determine a correlation between a second at least one of the first plurality of images and a second at least one of the second plurality of images [according to Fig. 8, the two images, gmage 1 (100) and gimage 2 (102), respectively corresponding to the same cardiac phase from two clips, are searched in x-direction only and estimate a preliminary estimate for tx are determined in act (104)]; and generate a second combined image of the first portion and the second portion based on the second at least one of the first plurality of images and the second at least one of the second plurality of images, the second combined image corresponding to a second phase of the periodic motion (please note, to Fig. 8, for different correlation).

Regarding claim 23, Ustuner discloses an apparatus according to claim 21, wherein determination of the second correlation comprises: determination that the

portion is substantially identically represented in the second at least one of the first plurality of images and the second at least one of the second plurality of images (please note, to column 8, lines 21-29).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ustuner et al (U. S. 6,780,152 B2) in view of Nakamura et al (U. S. 6,426,987 B2).

Regarding claim 2, Ustuner is silent about the specific details regarding a method according to claim 1, wherein the first plurality of images and the second plurality of images comprise three-dimensional cross-sectional images of the body.

In the same field (medical imaging) endeavor, however, Nakamura discloses imaging system and method of constructing image using the system comprises three-dimensional cross-sectional images of the body (please note, to column 13, lines 23-27).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use three-dimensional cross-sectional images as taught Nakamura in the system of Ustuner because Nakamura provides Ustuner an improved system which the cross sectional image of the diagnosing subject can be constructed with higher speed, higher precision, and more easiness. Also the system can detect the

peaks or troughs with nonuniform intervals. This makes it possibleto produce the cross sectional image of the heart in the diastolic or systolic phase with a high speed, high precision, and easiness without visual ascertaining work of the measure (please note, to column 4, lines 43-63).

Regarding claim 16, Ustuner is silent about the specific details regarding an apparatus according to claim 15, wherein the first plurality of images and the second plurality of images comprise three-dimensional cross-sectional images of the body. In the same field (medical imaging) endeavor, however, Nakamura discloses imaging system and method of constructing image using the system comprises three-dimensional cross-sectional images of the body (please note, to column 13, lines 23-27).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use three-dimensional cross-sectional images as taught Nakamura in the system of Ustuner because Nakamura provides Ustuner an improved

system which the cross sectional image of the diagnosing subject can be constructed with higher speed, higher precision, and more easiness. Also the system can detect the peaks or troughs with nonuniform intervals. This makes it possibleto produce the cross sectional image of the heart in the diastolic or systolic phase with a high speed, high precision, and easiness without visual ascertaining work of the measure (please note, to column 4, lines 43-63).

5. Claims 3, 4, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ustuner et al (U. S. 6,780,152 B2) and Nakamura et al (U. S.

6,426,987 B2) as applied to claims 2 and 16 above, and further in view of Ikebe et al (U. S. 5,329,567).

Regarding claim 3, Ustuner and Nakamura are silent about the specific details regarding a method according to claim 2, wherein the first plurality of images and the second plurality of images are acquired by a computed tomography scanner.
In the same field (medical imaging) endeavor, however, Ikebe discloses system for sterotactic radiography with a computerized tomographic scanning system comprises a computed tomography scanner (please note, to column 3, lines 3-10).
It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a computed tomography scanner as taught Nakamura in the system of Ustuner because Nakamura provides Ustuner an improved system for stereotactic radiation therapy with a linear accelerator which operated in accordance with information obtained by CT scanner. System could minimize the dose of x-rays to other parts than lesion and may exactly irradiate x-ray to an affected part (please note, to column 1, lines 10-13 and 36-40).

Regarding claim 4, Ustuner and Nakamura are silent about the specific details regarding a method according to claim 2, wherein the first plurality of images and the second plurality of images are acquired using a linear accelerator.
In the same field (medical imaging) endeavor, however, Ikebe discloses system for sterotactic radiography with a computerized tomographic scanning system comprises a computed tomography scanner (please note, to column 3, lines 3-10 and column 4, lines 15-17).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a linear accelerator as taught Nakamura in the system of Ustuner because Nakamura provides Ustuner an improved system for stereotactic radiation therapy with a linear accelerator which operated in accordance with information obtained by CT scanner. System could minimize the dose of x-rays to other parts than lesion and may exactly irradiate x-ray to an affected part (please note, to column 1, lines 10-13 and 36-40).

Regarding claim 17, Ustuner and Nakamura are silent about the specific details regarding an apparatus according to claim 16, wherein the first plurality of images and the second plurality of images are acquired by a computed tomography scanner.
In the same field (medical imaging) endeavor, however, Ikebe discloses system for sterotactic radiography with a computerized tomographic scanning system comprises a computed tomography scanner (please note, to column 3, lines 3-10).
It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a computed tomography scanner as taught Nakamura in the system of Ustuner because Nakamura provides Ustuner an improved system for stereotactic radiation therapy with a linear accelerator which operated in accordance with information obtained by CT scanner. System could minimize the dose of x-rays to other parts than lesion and may exactly irradiate x-ray to an affected part (please note, to column 1, lines 10-13 and 36-40).

Regarding claim 18, Ustuner and Nakamura are silent about the specific details regarding an apparatus according to claim 16, wherein the first plurality of images and the second plurality of images are acquired using a linear accelerator.

In the same field (medical imaging) endeavor, however, Ikebe discloses system for sterotactic radiography with a computerized tomographic scanning system comprises a computed tomography scanner (please note, to column 3, lines 3-10 and column 4, lines 15-17).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a linear accelerator as taught Nakamura in the system of Ustuner because Nakamura provides Ustuner an improved system for stereotactic radiation therapy with a linear accelerator which operated in accordance with information obtained by CT scanner. System could minimize the dose of x-rays to other parts than lesion and may exactly irradiate x-ray to an affected part (please note, to column 1, lines 10-13 and 36-40).

6. Claims 8 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ustuner et al (U. S. 6,780,152 B2) in view of Chalmers (U. S. 6,546,072 B1).

Regarding claim 8, Ustuner and Nakamura are silent about the specific details regarding a method according to claim 7, further comprising:

generating an animation based on the combined image and on the second combined image, the animation representing the first portion and the second portion undergoing the periodic motion.

In the same field (medical imaging) endeavor, however, Chalmers discloses transmission enhanced scatter imaging comprising the step of:

generating an animation based on the combined image and on the second combined image, the animation representing the first portion and the second portion undergoing the periodic motion (please note, to column 5, lines 6-15).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use an animation based on combined image as taught Nakamura in the system of Ustuner because Nakamura provides Ustuner an effectively three-dimensional and photorealistic image of the contents of a container, and thus advantageously contribute to visualization by an operator of the contents.

Regarding claim 22, Ustuner is silent about the specific details regarding an apparatus according to claim 21, the processor further operative in conjunction with the stored process steps to:

generate an animation based on the combined image and on the second combined image, the animation representing the first portion and the second portion undergoing the periodic motion.

In the same field (medical imaging) endeavor, however, Chalmers discloses transmission enhanced scatter imaging comprising the step of:

generating an animation based on the combined image and on the second combined image, the animation representing the first portion and the second portion undergoing the periodic motion (please note, to column 5, lines 6-15).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use an animation based on combined image as taught Nakamura in the system of Ustuner because Nakamura provides Ustuner an effectively three-dimensional and photorealistic image of the contents of a container, and thus advantageously contribute to visualization by an operator of the contents.

6. Claims 10-14 and 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ustuner et al (U. S. 6,780,152 B2) in view of Mostafavi (U. S. 7,158,610 B2).

Regarding claim 10, Ustuner is silent about the specific details regarding a method according to claim 1, further comprising the steps of:

acquiring a third plurality of images of a third portion of the body, the third portion comprising a next portion of the second portion; determining a correlation between the at least one of the second plurality of images and at least one of the third plurality of images; and, generating a combined image of the second portion and the third portion based on the at least one of the second plurality of images and the at least one of the third plurality of images, the combined image of the second portion and the third portion corresponding to the first phase of the periodic motion.

In the same field (medical imaging) endeavor, however, Mostafavi discloses systems and methods for processing x-ray images comprising the steps of:

acquiring a third plurality of images of a third portion of the body (please note, to column 17, lines 24-26), the third portion comprising a next portion of the second portion (please note, to column 12, lines 17-29 and column 17, lines 11-13); determining a

correlation between the at least one of the second plurality of images and at least one of the third plurality of images (please note, to column 5, lines 18-28 and column 17, lines 11-13); and, generating a combined image of the second portion and the third portion based on the at least one of the second plurality of images and the at least one of the third plurality of images, the combined image of the second portion and the third portion corresponding to the first phase of the periodic motion (please note, to column 4, lines 47-50 and column 17, lines 11-13).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a third plurality of images of a third portion of the body as taught Mostafavi in the system of Ustuner because Mostafavi provides Ustuner an improved system for visualization of internal tissue without use of internal markers would be useful and the x-ray image processing technique can be used to detect a motion of a target tissue, and a medical procedure may be gated based on the detected motion.

Regarding claim 11, Ustuner is silent about the specific details regarding a method according to claim 10, further comprising the step of:

generating a next combined image based on the combined image of the second portion and the third portion and on the combined image of the first portion and the second portion, the next combined image corresponding to the first phase of the periodic motion.

In the same field (medical imaging) endeavor, however, Mostafavi discloses systems and methods for processing x-ray images comprising the step of:

generating a next combined image based on the combined image of the second portion and the third portion and on the combined image of the first portion and the second portion (please note to column 4, lines 47-50), the next combined image corresponding to the first phase of the periodic motion (please note, to column 4, lines 47-50 and column 11, lines 48-56).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use combined image of the second portion and the third portion of the body as taught Mostafavi in the system of Ustuner because Mostafavi provides Ustuner an improved system for visualization of internal tissue without use of internal markers would be useful and the x-ray image processing technique can be used to detect a motion of a target tissue, and a medical procedure may be gated based on the detected motion.

Regarding claim 12, Ustuner is silent about the specific details regarding a method according to claim 10, wherein determining the correlation between the at least one of the second plurality of images and the at least one of the third plurality of images comprises determining that the next portion is substantially identically represented in the at least one of the second plurality of images and the at least one of the third plurality of images.

In the same field (medical imaging) endeavor, however, Mostafavi discloses systems and methods for processing x-ray images comprises determining that the next portion is substantially identically represented in the at least one of the second plurality of images and the at least one of the third plurality of images (please not, to column 5, lines 18-

28).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use determining the correlation between the at least one of the second plurality of images and the at least one of the third plurality of images as taught Mostafavi in the system of Ustuner because Mostafavi provides Ustuner an improved system for visualization of internal tissue without use of internal markers would be useful and the x-ray image processing technique can be used to detect a motion of a target tissue, and a medical procedure may be gated based on the detected motion.

Regarding claim 13, Ustuner is silent about the specific details regarding a method according to claim 1, further comprising the steps of:

acquiring a third plurality of images of a third portion of the body, the third portion comprising a next portion of the second portion; determining a correlation between a second at least one of the second plurality of images and at least one of the third plurality of images; and, generating a combined image of the second portion and the third portion based on the second at least one of the second plurality of images and the at least one of the third plurality of images, the combined image of the second portion and the third portion corresponding to a second phase of the periodic motion.

In the same field (medical imaging) endeavor, however, Mostafavi discloses systems and methods for processing x-ray images comprising the steps of:

acquiring a third plurality of images of a third portion of the body (please note, to column 17, lines 24-26), the third portion comprising a next portion of the second portion (please note, to column 12, lines 17-29 and column 17, lines 11-13); determining a

correlation between a second at least one of the second plurality of images and at least one of the third plurality of images (please note, to column 5, lines 18-28 and column 17, lines 11-13); and, generating a combined image of the second portion and the third portion based on the second at least one of the second plurality of images and the at least one of the third plurality of images, the combined image of the second portion and the third portion corresponding to a second phase of the periodic motion (please note, to column 4, lines 47-50 and column 17, lines 11-13).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a third plurality of images of a third portion of the body as taught Mostafavi in the system of Ustuner because Mostafavi provides Ustuner an improved system for visualization of internal tissue without use of internal markers would be useful and the x-ray image processing technique can be used to detect a motion of a target tissue, and a medical procedure may be gated based on the detected motion.

Regarding claim 14, Ustuner is silent about the specific details regarding a method according to claim 13, wherein determining the correlation between the second at least one of the second plurality of images and the at least one of the third plurality of images comprises: determining that the next portion is substantially identically represented in the at least one of the second plurality of images and the at least one of the third plurality of images.

In the same field (medical imaging) endeavor, however, Mostafavi discloses systems and methods for processing x-ray images comprises determining that the next portion is

substantially identically represented in the at least one of the second plurality of images and the at least one of the third plurality of images (please not, to column 5, lines 18-28).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use determining the correlation between the at least one of the second plurality of images and the at least one of the third plurality of images as taught Mostafavi in the system of Ustuner because Mostafavi provides Ustuner an improved system for visualization of internal tissue without use of internal markers would be useful and the x-ray image processing technique can be used to detect a motion of a target tissue, and a medical procedure may be gated based on the detected motion.

Regarding claim 24, Ustuner discloses an apparatus according to claim 15, the processor (please note, to Fig. 1, element 18) further operative in conjunction with the stored process (please note, to column 7, lines 14-15).

However, Ustuner is silent about the specific details regarding the steps of:

acquire a third plurality of images of a third portion of the body, the third portion comprising a next portion of the second portion; determine a correlation between the at least one of the second plurality of images and at least one of the third plurality of images; and, generate a combined image of the second portion and the third portion based on the at least one of the second plurality of images and the at least one of the third plurality of images, the combined image of the second portion and the third portion corresponding to the first phase of the periodic motion.

In the same field (medical imaging) endeavor, however, Mostafavi discloses systems and methods for processing x-ray images comprising the steps of:

acquire a third plurality of images of a third portion of the body (please note, to column 17, lines 24-26), the third portion comprising a next portion of the second portion (please note, to column 12, lines 17-29 and column 17, lines 11-13); determine a correlation between the at least one of the second plurality of images and at least one of the third plurality of images (please note, to column 5, lines 18-28 and column 17, lines 11-13); and, generate a combined image of the second portion and the third portion based on the at least one of the second plurality of images and the at least one of the third plurality of images, the combined image of the second portion and the third portion corresponding to the first phase of the periodic motion (please note, to column 4, lines 47-50 and column 17, lines 11-13).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a third plurality of images of a third portion of the body as taught Mostafavi in the system of Ustuner because Mostafavi provides Ustuner an improved system for visualization of internal tissue without use of internal markers would be useful and the x-ray image processing technique can be used to detect a motion of a target tissue, and a medical procedure may be gated based on the detected motion.

Regarding claim 25, Ustuner discloses an apparatus according to claim 24, the processor (please note, to Fig. 1, element 18) further operative in conjunction with the stored process (please note, to column 7, lines 14-15).

However, Ustuner is silent about the specific details regarding generating a next combined image based on the combined image of the second portion and the third portion and on the combined image of the first portion and the second portion, the next combined image corresponding to the first phase of the periodic motion.

In the same field (medical imaging) endeavor, however, Mostafavi discloses systems and methods for processing x-ray images comprises generating a next combined image based on the combined image of the second portion and the third portion and on the combined image of the first portion and the second portion, the next combined image corresponding to the first phase of the periodic motion (please note, to column 4, lines 47-50 and column 11, lines 48-56).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use combined image of the second portion and the third portion of the body as taught Mostafavi in the system of Ustuner because Mostafavi provides Ustuner an improved system for visualization of internal tissue without use of internal markers would be useful and the x-ray image processing technique can be used to detect a motion of a target tissue, and a medical procedure may be gated based on the detected motion.

Regarding claim 26, Ustuner is silent about the specific details regarding an apparatus according to claim 24, wherein determination of the correlation between the at least one of the second plurality of images and at least one of the third plurality of images comprises: determination that the next portion is substantially identically

represented in the at least one of the second plurality of images and the at least one of the third plurality of images.

In the same field (medical imaging) endeavor, however, Mostafavi discloses systems and methods for processing x-ray images comprises determination that the next portion is substantially identically represented in the at least one of the second plurality of images and the at least one of the third plurality of images (please not, to column 5, lines 18-28).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use determining the correlation between the at least one of the second plurality of images and the at least one of the third plurality of images as taught Mostafavi in the system of Ustuner because Mostafavi provides Ustuner an improved system for visualization of internal tissue without use of internal markers would be useful and the x-ray image processing technique can be used to detect a motion of a target tissue, and a medical procedure may be gated based on the detected motion.

Regarding claim 27, Ustuner discloses an apparatus according to claim 15, the processor (please note, to Fig. 1, element 18) further operative in conjunction with the stored process (please note, to column 7, lines 14-15).

However, Ustuner is silent about the specific details regarding the step of:

acquiring a third plurality of images of a third portion of the body (please note, to column 17 lines 24-26), the third portion comprising a next portion of the second portion (please note, to column 12, lines 17-29 and column 17, lines 11-13); determine a correlation between a second at least one of the second plurality of images and at least

one of the third plurality of images; and generate a combined image of the second portion and the third portion based on the second at least one of the second plurality of images and the at least one of the third plurality of images, the combined image of the second portion and the third portion corresponding to a second phase of the periodic motion.

In the same field (medical imaging) endeavor, however, Mostafavi discloses systems and methods for processing x-ray images comprising the step of:

acquiring a third plurality of images of a third portion of the body, the third portion comprising a next portion of the second portion; determine a correlation between a second at least one of the second plurality of images and at least one of the third plurality of images (please note, to column 5, lines 18-28 and column 17, lines 11-13); and generate a combined image of the second portion and the third portion based on the second at least one of the second plurality of images and the at least one of the third plurality of images, the combined image of the second portion and the third portion corresponding to a second phase of the periodic motion (please note, to column 4, lines 47-50 and column 17, lines 11-13).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a third plurality of images of a third portion of the body as taught Mostafavi in the system of Ustuner because Mostafavi provides Ustuner an improved system for visualization of internal tissue without use of internal markers would be useful and the x-ray image processing technique can be used to detect a motion of a target tissue, and a medical procedure may be gated based on the detected

motion.

Regarding claim 28, Ustuner is silent about the specific details regarding an apparatus according to claim 27, wherein determination of the correlation between the second at least one of the second plurality of images and the at least one of the third plurality of images comprises: determination that the next portion is substantially identically represented in the at least one of the second plurality of images and the at least one of the third plurality of images.

In the same field (medical imaging) endeavor, however, Mostafavi discloses systems and methods for processing x-ray images comprises determination of the correlation between the second at least one of the second plurality of images and the at least one of the third plurality of images comprises (column 5, lines 18-28) and determination that the next portion is substantially identically represented in the at least one of the second plurality of images and the at least one of the third plurality of images (please not, to column 5, lines 18-28).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use determining the correlation between the at least one of the second plurality of images and the at least one of the third plurality of images as taught Mostafavi in the system of Ustuner because Mostafavi provides Ustuner an improved system for visualization of internal tissue without use of internal markers would be useful and the x-ray image processing technique can be used to detect a motion of a target tissue, and a medical procedure may be gated based on the detected motion.

Other Prior Art Cited

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yavuz et al (U. S. 6,522,712 B1) disclose reconstruction of CT images using interpolation between projection views.

O'Donnell et al (U. S. 6,563,941 B1) disclose model-based registration of cardiac CTA and MR acquisitions.

Ikeda et al (U. S. 7,054,406 B2) disclose x-ray CT apparatus and method of measuring CT values.

Trulson et al (U. S. 6,025,601) disclose method and apparatus for imaging a sample on a device.

Contact Information

6. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to ABOLFAZL TABATABAI whose telephone number is (571) 272-7458.

The Examiner can normally be reached on Monday through Friday from 9:30 a.m. to 7:30 p.m. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Bhavesh Mehta, can be reached at (571) 272-7453. The fax phone number for organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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April 28, 2007

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